AMENDMENTS TO THE CLAIMS

The following is a complete listing of the claims indicating the current status of each claim and including an amendment, claim 83, currently entered as indicated.

1. (withdrawn) A method for forming nanostructures on a workpiece, comprising the steps of:

(a) positioning a counter-electrode and a workpiece electrode arrangement relative to each other, such that, there is a gap between said counter-electrode and said workpiece electrode arrangement; and

(b) applying an electrical pulse between said workpiece electrode arrangement and said counter electrode, such that, an electrical discharge in produced in said gap, said electrical discharge forming at least one nanostructure in a first region of a surface of said workpiece electrode arrangement, said electrical pulse having a duration of less than one millisecond.

2. (withdrawn) The method of claim 1, wherein a maximum dimension of said first region is less than one millimeter.

3. (withdrawn) The method of claim 1, wherein said electrical pulse has a current pulse amplitude between 1 and 100 Amps.

4. (withdrawn) The method of claim 1, wherein said electrical discharge is produced in a substantially uncontrolled ambient air atmosphere.

5. (withdrawn) The method of claim 1, further comprising the steps of:

(c) providing relative movement between said counter-electrode and said workpiece electrode arrangement; and

(d) applying another electrical pulse between said workpiece electrode arrangement and said counter electrode in order for an electrical discharge to form at least one nanostructure in a second region of the surface of said workpiece arrangement, said other electrical pulse having a duration of less than one millisecond.

6. (withdrawn) The method of claim 1, further comprising the step of:

(c) selecting a shape of said counter-electrode and a relative positioning of said workpiece electrode arrangement and said counter-electrode in order to selectively determine said first region.

7. (withdrawn) The method of claim 1, further comprising the steps of:

(c) disposing said workpiece electrode arrangement on to a conveyor system; and

(d) actuating said conveyor system so as to provide relative movement between said workpiece electrode arrangement and said counter-electrode.

8. (withdrawn) The method of claim 1, wherein said counter-electrode includes a carbon rod.

9. (withdrawn) The method of claim 1, wherein said counter-electrode includes carbon and said workpiece electrode arrangement includes a catalytic metal.

10. (withdrawn) A method for forming nanostructures on a workpiece, comprising the steps of:

(a) positioning a counter-electrode and a workpiece electrode arrangement relative to each other, such that, there is a gap between said counter-electrode and said workpiece electrode arrangement; and

(b) producing an electrical discharge in said gap, said electrical discharge forming at least one nanostructure in a first region of a surface of said workpiece electrode arrangement, wherein said first region is selectively determined by a shape of said counter-electrode and a relative positioning of said workpiece electrode arrangement and said counter-electrode.

11. (withdrawn) The method of claim 10, wherein said step of producing said electrical discharge in said gap is performed by applying an electrical pulse between said workpiece electrode arrangement and said counter electrode.

12. (withdrawn) The method of claim 10, wherein a maximum dimension of said first region is less than one millimeter.

13. (withdrawn) The method of claim 10, wherein said electrical discharge is produced in an atmosphere of at least 50% Helium.

14. (withdrawn) The method of claim 10, wherein said electrical discharge is produced in a substantially uncontrolled ambient air atmosphere.

15. (withdrawn) The method of claim 10, further comprising the steps of:

(c) providing relative movement between said counter-electrode and said workpiece electrode arrangement; and

(d) producing another electrical discharge in said gap, in order to form at least one other nanostructure in a second region of the surface of said workpiece arrangement.

16. (withdrawn) The method of claim 10, wherein said counter-electrode includes an elongated element having a tip.

17. (withdrawn) The method of claim 10, wherein said counter-electrode includes a rod.

18. (withdrawn) The method of claim 10, wherein said counter-electrode includes a fiber.

19. (withdrawn) The method of claim 10, further comprising the steps of:

(c) moving said counter-electrode until said counter-electrode makes a physical contact with said workpiece electrode arrangement;

(d) electrically sensing when said counter-electrode makes said physical contact with said workpiece electrode arrangement; and

(e) withdrawing said counter-electrode from said workpiece electrode arrangement by a pre-determined distance.

20. (withdrawn) The method of claim 10, wherein said counter-electrode includes a line.

21. (withdrawn) The method of claim 20, further comprising the step of:

(c) releasing an end of said line towards said workpiece electrode arrangement.

22. (withdrawn) The method of claim 20, wherein said line includes a plurality of carbon fibers.

23. (withdrawn) The method of claim 10, further comprising the steps of:

(c) disposing said workpiece electrode arrangement on to a conveyor system; and

(d) actuating said conveyor system so as to provide relative movement between said workpiece electrode arrangement and said counter-electrode.

24. (withdrawn) The method of claim 10, wherein said nanostructure is substantially formed from carbon and wherein at least one of said workpiece electrode arrangement and said counter-electrode include carbon.

25. (withdrawn) The method of claim 24, wherein at least one of said workpiece electrode and said counter-electrode has a surface region including at least fifty-percent carbon.

26. (withdrawn) The method of claim 24, wherein said counter-electrode includes at least fifty-percent carbon.

27. (withdrawn) The method of claim 24, wherein said counter-electrode includes a carbon rod.

28. (withdrawn) The method of claim 24, wherein said counter-electrode includes a carbon fiber.

29. (withdrawn) The method of claim 24, wherein said counter-electrode includes carbon and said workpiece electrode arrangement includes a catalytic metal.

30. (withdrawn) The method of claim 10, wherein said step of producing is performed, such that, said electrical discharge forms at least one carbon nanotube in said first region.

31. (withdrawn) The method of claim 10, wherein said counter-electrode is a cathode.

32. (withdrawn) The method of claim 10, wherein said counter-electrode is an anode.

33-56 (cancelled)

57. (previously presented) A system for producing nanostructures, comprising:

(a) a workpiece electrode arrangement having a surface;

(b) a counter-electrode, at least one of said workpiece electrode arrangement and said counter-electrode comprising carbon, said workpiece electrode arrangement and said counter-electrode being positioned, such that, there is a gap between said workpiece electrode arrangement and said counter-electrode; and

(c) an electrical voltage supply-configured to produce at least one electrical pulse having a duration of less than one millisecond in order to produce an electrical discharge in said gap so as to form at least one carbon-nanotube in a first

region of said surface of said workpiece electrode, wherein said counter-electrode is configured to selectively determine said first region.

58. (previously presented) The system of claim 57, wherein said first region has a maximum dimension, said maximum dimension being less than one millimeter.

59. (previously presented) The system of claim 57, wherein a part of said gap in which said electrical discharge is produced has an atmosphere of at least 50% Helium.

60. (previously presented) The system of claim 57, wherein a part of said gap in which said electrical discharge is produced has a substantially uncontrolled ambient air atmosphere.

61. (previously presented) The system of claim 57, further comprising:

(d) a drive mechanism arrangement configured to provide relative movement between said workpiece electrode arrangement and said counter-electrode, such that, said electrical voltage supply is configured to produce another electrical discharge in order to form at least one other carbon-nanotube in a second region on said surface of said workpiece electrode arrangement.

62. (previously presented) The system of claim 61, wherein said drive mechanism arrangement includes a conveyor apparatus configured for disposing said workpiece electrode arrangement thereon.

63. (previously presented) The system of claim 57, wherein at least one of said workpiece electrode and said counter-electrode has a surface region including at least fifty-percent carbon.

64. (previously presented) The system of claim 57, wherein said counter-electrode includes at least fifty-percent carbon.

65. (previously presented) The system of claim 57, wherein said electrical pulse has a current pulse amplitude between 1 and 100 Amps.

66. (previously presented) The system of claim 57, wherein said counter-electrode includes an elongated element having a tip.

67. (previously presented) The system of claim 57, wherein said counter-electrode includes a rod.

68. (previously presented) The system of claim 57, wherein said counter-electrode includes a fiber.

69. (previously presented) The system of claim 57, further comprising:

(d) a drive mechanism arrangement configured to move said counter-electrode until said counter-electrode makes a physical contact with said workpiece electrode arrangement; and

(e) an electrical sensing apparatus configured to sense when said counter-electrode makes said physical contact with said workpiece electrode arrangement, wherein said drive mechanism arrangement is configured to

withdraw said counter-electrode from said workpiece electrode arrangement by a pre-determined distance.

70. (previously presented) The system of claim 57, wherein said electrical voltage supply is further configured to produce at least one electrical pulse in order to produce said electrical discharge, said electrical pulse having a duration in the range of 0.2 to 20 microseconds.

71. (previously presented) The system of claim 57, wherein said counter-electrode includes a line.

72. (previously presented) The system of claim 71, further comprising:

(d) a release mechanism arrangement configured to release an end of said line towards said workpiece electrode arrangement.

73. (previously presented) The system of claim 71, wherein said line includes a plurality of carbon fibers.

74. (previously presented) The system of claim 57, wherein at least one of said workpiece electrode arrangement and said counter-electrode includes graphite.

75. (previously presented) The system of claim 57, wherein said electrical voltage supply is configured to operate said counter-electrode as a cathode.

76. (previously presented) A system for producing nanostructures, comprising:

(a) a workpiece electrode arrangement having substantially no carbon content and a surface;

(b) a counter-electrode, said workpiece electrode arrangement and said counter-electrode being positioned, such that, there is a non-inert gas filled gap between said workpiece electrode arrangement and said counter-electrode; and

(c) an electrical voltage supply, said electrical voltage supply being configured to produce an electrical discharge in said gap so as to form at least one nanostructure in a first region of said surface, wherein said electrical voltage supply is configured to operate said counter-electrode as a cathode.

77. (previously presented) The system of claim 76, wherein said first region has a maximum dimension, said maximum dimension being less than one millimeter.

78. (previously presented) The system of claim 76, wherein a part of said gap in which said electrical discharge is produced has a substantially uncontrolled ambient air atmosphere.

79. (previously presented) The system of claim 76, wherein said electrical voltage supply is configured to produce at least one electrical pulse in order to produce said electrical discharge, said electrical pulse having a duration of less than one millisecond.

80. (previously presented) The system of claim 57, wherein said electrical voltage supply is further configured to produce at least one electrical pulse in order to

produce said electrical discharge, said electrical pulse having a duration in the range of 0.2 to 20 microseconds.

81. (previously presented) The system of claim 79, wherein said electrical pulse has a current pulse amplitude between 1 and 100 Amps.

82. (previously presented) The system of claim 76, wherein said surface contains nickel.

83. (new) The system of claim 76, wherein said at least one nanostructure contains at least 50% carbon.